OMB Control # 2060-0482

For EPA Use Only ID # _____
SECTOR _____

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

2003 Application for Critical Use Exemption of Methyl Bromide for Post Harvest Use in 2005 and beyond in the United States

WHY IS THIS INFORMATION NEEDED?	Under the Clean Air Act and the international treaty to protect the ozone layer (the Montreal Protocol on Substances that Deplete the Ozone Layer), the production and import of methyl bromide will be phased out in the United States on January 1, 2005. This application seeks information to support a U.S. request to produce and import methyl bromide for certain critical uses and circumstances beyond this 2005 phaseout date. The information in this application will be used to review whether your use of methyl bromide is "critical" because no technically and economically feasible alternatives are available. In order to estimate the loss as a result of not having methyl bromide available, EPA needs to compare data (commodity prices, revenues, and costs) for your use of methyl bromide with uses of alternative pest control regimens. If you submit a well documented application with sound reasons why alternatives are not technically and economically feasible, the U.S. government can be a better advocate for your exemption request internationally.

Click on the Instructions tab located at the bottom of the screen for additional information.

The information contained in this application is critical to process and assess the need for methyl bromide. Filling out this application in its entirety will bolster the U.S. government's ability to strengthen the nomination package for the international review boards.

INSTRUCTIONS

The information provided by you in this application will be used to evaluate the requested methyl bromide use. The U.S. and other countries that are parties to the Montreal Protocol On Substances That Deplete The Ozone Layer decided that: "a use of methyl bromide should qualify as "critical" only if the nominating Party determines that:

(i) The specific use is critical because the lack of availability of methyl bromide for that use would result in a significant market disruption; and
(ii) There are no technically and economically feasible alternatives available to the user that are acceptable from the standpoint of environment and health and are suitable to the crops and circumstances of the nomination …"

WHO APPLIES?	If you anticipate that you will need methyl bromide in 2005 because you believe there are no technically and economically feasible alternatives, then you should apply for the critical use exemption. This application may be submitted either by a consortium representing multiple users or by individual users. We encourage users with similar circumstances of use to submit a single application (for example, any number of post harvest users with similar commodity, pest, and structural conditions can submit a single application.) If a consortium is applying for multiple methyl bromide users, the economic data should be for a representative or typical user within the consortium unless otherwise noted. If economic or technical factors (such as types of commodities) affecting the ability of this "representative user" to use alternatives are significantly different than other users in the consortium, more than one application should be submitted to reflect these differences. Please contact your local, state, regional or national commodity association and/or state representative agency to find out if they plan on submitting an application on behalf of your commodity group.
STATE CONTACTS	States that have agreed to participate in the exemption process are listed on EPA's website at www.epa.gov/ozone/mbr/cueqa.html
HOW DO I APPLY?	You may either complete an electronic (Microsoft Excel) or a printed version of the application. Please fill out each form or worksheet in the application as completely as possible. If you are completing the printed version and need extra space you may attach additional sheets as needed. Additional information may be available from your local state department of agriculture or at the sites listed below or by calling 1-800-296-1996.
IS MY INFORMATION CONFIDENTIAL?	The applicant may assert a business confidentiality claim covering part or all of the information in the application by placing on (or attaching to) the information, at the time it is submitted to EPA, a cover sheet, stamped or typed legend, or other suitable form of notice employing language such as trade secret, proprietary, or company confidential. Allegedly confidential portions of otherwise non-confidential documents should be clearly identified by the applicant, and may be submitted separately to facilitate identification and handling by EPA. If the applicant desires confidential treatment only until a certain date or until the occurrence of a certain event, the notice should so state. Information covered by a claim of confidentiality will be disclosed by EPA only to the extent, and by means of the procedures set forth under 40 CFR Part 2 Subpart B; 41 FR 36902, 43 FR 400000. 50 FR 51661. If no claim of confidentiality accompanies the information when it is received by EPA, it may be made available to the public by EPA without further notice to the applicant. Applicants submitting their application via e-mail assume responsibility for the confidentiality of the electronic message transmission.
WHEN IS THE INFORMATION NEEDED?	This application must be postmarked to the EPA address below no later than 120 days after the Notice was published in the Federal Register requesting critical use exemption applications.
WHERE DO I SUBMIT THE APPLICATION?	**Electronic Address for applications:** methyl.bromide@epa.gov **When submitting an application electronically, you should also print a hard copy, sign it, and submit it by mail**

Mailing Address for applications being submitted by mail directly to the EPA:	**Address for applications being sent by courier or non-U.S. Postal overnight express delivery to the EPA:**
US Environmental Protection Agency Methyl Bromide Critical Use Exemption Office of Pesticide Programs Mail Code 7503C 1200 Pennsylvania Ave, NW Washington, DC 20460	US Environmental Protection Agency Methyl Bromide Critical Use Exemption Office of Pesticide Programs 911 Bay, BEAD 1921 Jefferson Davis Highway Arlington, VA 22202 Telephone: (703) 308-8200

HOW CAN I RECEIVE ADDITIONAL INFORMATION?	**If you have general questions about this application call:** Stratospheric Ozone Hotline 1-800-296-1996

INSTRUCTIONS

SECTIONS OF WORKBOOK	**Each worksheet number corresponds to the tab number in the electronic version of the application. Instructions specific to each worksheet are provided at the top of each sheet. A header row is included on each worksheet to include an application ID number that EPA will assign.**
	Instructions
	Worksheet 1. Contact and Methyl Bromide Request Information
	Worksheet 2. Methyl Bromide
	Worksheet 2-A. Methyl Bromide - Pest and Processing Information
	Worksheet 2-B. Methyl Bromide - Historical Use for 1997 - 2002
	Worksheet 2-C. Methyl Bromide - Commodity Treated & Gross Profit for 2000 - 2002
	Worksheet 2-D. Methyl Bromide - Operating Costs for 2002
	Worksheet 3. Alternatives
	Worksheet 3-A. Alternatives - Technical Feasibility of Alternatives to Methyl Bromide
	Worksheet 3-B. Alternatives - Changes in Operating Costs
	Worksheet 4. Future Research Plans
	Worksheet 5. Application Summary
	Definitions
	Climate Zone Map
EXCEL USER TIPS	**Inserting a blank worksheet:**
	1. To add additional blank worksheets in the Excel file, go to the menu line at the top of the worksheet and select "Insert" then "worksheet"
	2. A tab with the name "Sheet 1" will appear at the bottom of the worksheet and will be highlighted in white. Take the cursor and double click the "new tab"
	3. By double clicking in the tab you can now rename the worksheet to the appropriate number letter designation (e.g., 3-A(1), 3-A(1)(a), etc.)
	4. To move a newly inserted worksheet, simply drag the worksheet with your mouse to the desired location.
	5. Once you add a new worksheet, Excel will automatically name each subsequently added worksheet as Sheet 2, Sheet 3, etc… Follow the instructions above to rename the new blank worksheets as appropriate.
	Copying and pasting an entire worksheet's contents into a blank worksheet:
	1. Select the worksheet to be copied by clicking on the worksheet tab at the bottom of the screen. The tab will turn white in color when it has been selected.
	2. Select the top left corner of the worksheet (this is the space to the left of column A and above row 1. You will know that the entire worksheet has been selected because the row and column marks as well as the worksheet itself will change to a different color.
	3. Go to the menu line at the top of the worksheet and select "Edit" then "Copy".
	4. Go to the blank worksheet where you want the copied information to be pasted.
	5. Again, select the top left corner of the worksheet (left of column A and above row 1) to select the entire
	6. Go to the menu line at the top of the worksheet and select "Edit" then "Paste"
	7. Change the title row of the newly pasted worksheet from the old worksheet number to be consistent with the worksheet tab.
	Note: This is the only way you can copy a worksheet and not lose portions of the text instructions.
	Viewing worksheets
	Worksheets are best viewed in "Page Break Preview." To select the view of the worksheet, go to the menu bar and select "View" and then "Page Break Preview." Page break preview shows only the printable area of the worksheet, with the blue lines that surround the screen indicating the edges of each page.
	To increase or decrease the size of the page that is viewable on the screen, go to the menu bar and select "View" and then "Zoom".
	Navigating between worksheets
	The set of four arrows on the bottom left of the screen will help you navigate between worksheets. This is necessary to access the remaining worksheet tabs in the workbook that are not viewable. The two arrows with vertical lines to either the left or right will take you to the first worksheet and to the last worksheet respectively in the workbook. The inner two arrows allow you move the worksheet tabs to the right or to the left incrementally.
	The two arrows on the bottom right of the screen allow you to move the worksheet that you are viewing to the right or to the left. This is useful if the viewable area of on the screen is smaller than the entire page that is in the worksheet.
	Printing worksheets
	If you would like to print all worksheets that are contained in this workbook, go to the menu bar at the top of the screen and select "File" and then "Print." Then in the section of the menu that appears called "Print what," select "Entire Workbook."

Worksheet 1. Contact and Methyl Bromide Request Information

The following information will be used to determine the amount of methyl bromide requested and the contact person for this request. It is important that we know whom to contact in case we need additional information during the review of the application.

Is this information Confidential Business Information (CBI) **Yes** [ ] **No** [X]
If yes, the applicant assumes responsibility for the secure transmission of electronic submissions.

Applicant Name Walnut Producers, West Coast

Primary Contact

Contact Name Sally Contact
Address 111 Methyl Bromide Lane
Nut, CA, 99999

Specialty (Check One)
Agronomic [X]
Economic [ ]

Daytime Phone 666-666-6666
E-mail Address sc@nut.com
Cell Phone 666-666-6668
Fax 666-666-6667

Alternate Contact

Contact Name Joe Contact
Address 111 Methyl Bromide Lane
Nut, CA 99999

Specialty (Check One)
Agronomic [ ]
Economic [X]

Daytime Phone 666-666-6666
E-mail Address jc@nut.com
Cell Phone 666-666-6668
Fax 666-666-6667

I certify that all information contained in this document is factual to the best of my knowledge.

Signature _____ **Date** _____

Print Name Sally Contact **Title** Chief Agronomist

Information in this application may be aggregated with information from other applications and used by the United States government to justify claims in the national nomination package that a particular use of methyl bromide be considered "critical" and authorized for an exemption beyond the 2005 phaseout. Use of aggregate data will be crucial to making compelling arguments in favor of critical use exemptions. **By signing below**, you agree now to assert any claim of confidentiality that would affect the disclosure by EPA of aggregate information based in part on information contained in this application.

Signature _____ **Date** _____

Print Name _____ **Title** _____

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. Public reporting burden for this collection of information is estimated to average 324 hours per response and assumes a large portion of applications will be submitted by consortia on behalf of many individual users of methyl bromide. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a current OMB control

Worksheet 1. Contact and Methyl Bromide Request Information

1. Location (Enter the state, region, or county. Provide more details about the location if relevant to the feasibility of alternatives to methyl bromide.)

California

2. Commodity (Include all commodities that benefit from the application of methyl bromide in a fumigation cycle. See the Worksheet entitled "Fumigation Cycle" for definitions.)

Walnuts- In-Shell and Shelled

3. Range of structure/facility size by processors included in this application?

(Insert number or percentage of users in each category)

0 to 1,000 (1,000 cu ft)		10,000 to 50,000 (1,000 cu ft)	
1,000 to 5,000 (1,000 cu ft)	60%	0,000 to 100,000 (1,000 cu ft)	30%
5,000 to 10,000 (1,000 cu ft)		over 100,000 (1,000 cu ft)	10%

4. Climate (Average Minimum Temperature) (Individual users should enter their climate zone designation by reviewing the U.S. climate zone map located at the end of this workbook or it can be reviewed online at http://www.usna.usda.gov/ Hardzone/ushzmap.html. If a consortium is submitting this application, please indicate the estimated percentage of consortium users in each

(check all that apply) Zones: 1____ 2a____ 2b____ 3a____ 3b____ 4a____ 4b____ 5a____ 5b____ 6a____ 6b____ 7a____ 7b____ 8a____ 8b_X___ 9a____ 9b____

5. Is this applicant eligible for Quarantine and Preshipment (QPS) uses of methyl bromide? Yes [ ] No [X] Amount ____

6. Have you previously applied for Critical Use Exemption of Methyl Bromi Yes [ ] No [X] CUE # ____

7. What is the amount of methyl bromide being requested by this application? (Do NOT include QPS amo

If a consortium is submitting this application, the data should be the total for the consortium.

Year	Total Pounds Active Ingredient (a.i.) of Methyl Bromide		Total Volume (1,000 cu ft) to be Treated	
2005	165,000	lbs.	32,000	(1,000 cu ft)
2006	156,750	lbs.	30,400	(1,000 cu ft)
2007	148,500	lbs.	28,800	(1,000 cu ft)

8. Please explain why there may be variations in the pounds or volume (1,000 cu ft) treated from year to

Variation in pounds of methyl bromide used is because of fluctuations in the production of walnuts from year to year, and because of fluctuations in the amount of walnuts in shelled form and the amount of walnuts for bakery purposes. Both of these have different requirements of methyl bromide fumigation.

9. Please explain why methyl bromide is being requested.

No viable alternative available for methyl bromide.

10. Do you have access to recycled methyl bromide? Yes [ ] No [X] ____ Lbs (If yes, please specify amount (in pounds).)

11. Do you anticipate that you will have any methyl bromide in storage after January 1, 2005? Yes [ ] No [X] ____ Lbs (If yes, please specify amount (in pounds).)

Worksheet 2. Methyl Bromide

Purpose of Data: To establish a baseline estimate of commodity treated, gross profits, and costs using methyl bromide.

Instructions specific to each worksheet are located at the top of each sheet.

Worksheet	Title
2-A	**Methyl Bromide - Pest and Commodity Information** If a consortium is submitting this application, the data for this table should reflect the **representative user** for the consortium. The purpose of this worksheet is to determine pest infestation and commodity information where methyl bromide is used. This forms the baseline for evaluating the impacts of using an alternative to replace methyl bromide.
2-B	**Methyl Bromide - Historical Use 1997 - 2002** If a consortium is submitting this application, all data should reflect the **actual data** for the consortium. This worksheet provides data in actual usage for 1997-2002.
2-C	**Methyl Bromide - Commodity Treated and Gross Profits for 2000-2002** If a consortium is submitting this application, the data for this table should reflect the **representative user** for the consortium. This worksheet provides commodity treated and gross profits for 2000 through 2002. The purpose of this worksheet is to determine past gross profits when methyl bromide is used. This forms the baseline for evaluating the revenue impacts of using an alternative to replace methyl bromide.
2-D	**Baseline - Operating Costs for 2002** If a consortium is submitting this application, the data for this table should reflect the **representative user** for the consortium. This data is needed to estimate a baseline for operating costs in order to estimate **changes in costs** and the impact on operating profit and short-run economic viability as a result of not using methyl bromide. The purpose of this worksheet is to determine operating expenses when methyl bromide is used. This forms the baseline for evaluating the cost impacts of using an alternative to replace methyl bromide. The data requested are designed to help you identify how your operation would change if methyl bromide were unavailable, which will be shown in Worksheet 3-B.

Worksheet 2-A. Methyl Bromide - Pest & Processing Information

1. Commodity or Consortium

Walnut Producers, West Coast

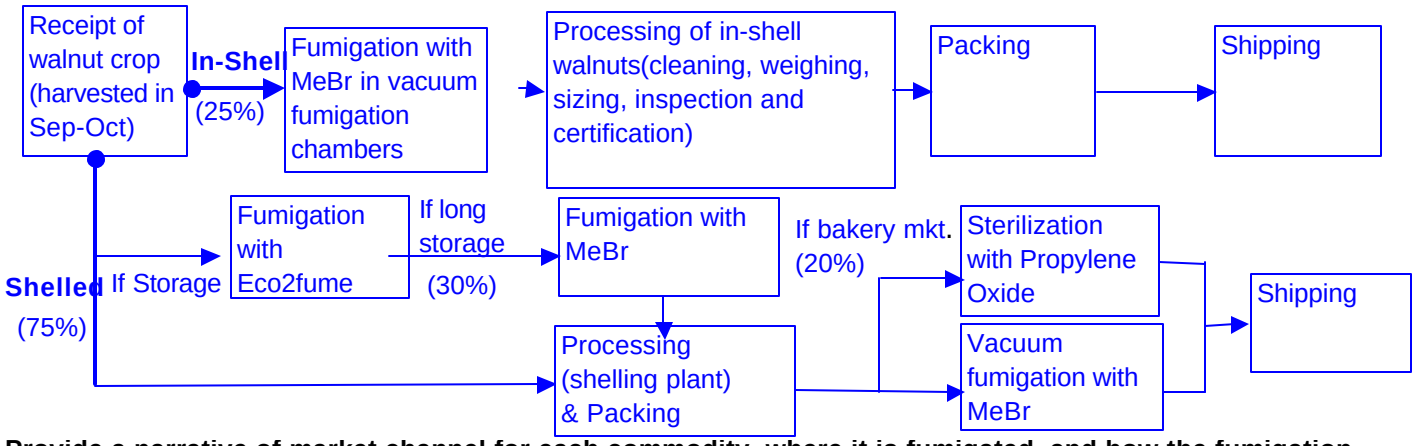
2. What month does your fumigation cycle start? (check only one)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
								X			

3. Fumigation Timeline (Indicate when fumigation, major commodity and pest management practices typically occur. If the fumigation cycle is longer than one year change the months to an appropriate interval.)

Beginning Fumigation Cycle	Time Interval _____Month_____ (e.g. WEEKS/MONTH/YEAR/SEASON)											
(please define time period)	Month 1	Month 2	Month 3	Month 4	Month 5							
Facility Preparation												
Sealing												
Cleaning												
Fumigation Timeline												
Reception of Raw Materials												
Processing												
Storage												
Raw Materials												
Finished Product												
Packing												
Shipping												
Retail Market Window												
Other Pest Treatments												
Other												

4. Please provide a simplified schematic diagram which illustrates the basic steps of the commodity moving through the process from raw material to finished product.



4a. Provide a narrative of market channel for each commodity, where it is fumigated, and how the fumigation effects market availability and commodity sale.

Worksheet 2-A. Methyl Bromide - Pest & Processing Information

5. Target Pest(s) or Pest Problem(s): (Please identify the top 3 target pests or pest problems. Provide at least common name and genus and species if possible. Additional pests or pest problems can be provided as an attachment.)

	Common Name	Genus	
Pest 1	Indianmeal moth	Plodia	Interpunctella
Pest 2	Red flour Beetles	Tribolium	Castaneum
Pest 3	Sawtooth grain beetle	Oryzaephilus	Surinamensis

6. Pest Economic Threshold (If available, please provide the economic threshold information for each pest, units, and source of information.)

	Economic Threshold	**Units** (e.g. pests/cu ft)	Source
Pest 1			
Pest 2			
Pest 3			

7. Target Pest Infestation (Please estimate the percentage of this user's total structural/facility volume with a moderate to severe problem with these pests. Describe source of information such as a survey or expert estimate.)

	Percentage of Total Structure/Facility	Source
Pest 1	90% **%**	Expert estimate
Pest 2	85% **%**	Expert estimate
Pest 3	65% **%**	Expert estimate

8. Representative User : (Please provide descriptive factors appropriate for your operation.)

Volume of Facility/Structure Treated with Methyl Bromide: _____ **1,000 cu ft**
Volume of Commodity Treated with Methyl Bromide: 2.5 **1,000 cu ft**
Rate of Application per Fumigation: 0.47 **ounds / ton**
Dimension of Structure/Facility: _____ X _____ X _____ **feet**
Total Commodity Treated per Year: 192850 **Tons (short)**
Commodity Treated per Fumigation: 220 **Tons (short)**

9. In what part and phase of the operation does the methyl bromide fumigation take place? (check all that apply)

Structure / Facility		**Fumigation Chamber**	**X**
Commodity	**X**	**Prior to Storage**	
Storage	**X**	**Prior to Shipping**	**X**
All			
Other			

10. What percentage of the operation have alternative(s) replaced methyl bromide in processing this commodity and if so, during what phase of the process?

Alternative	% Replaced	Phase of Process	Details
Phosphine (Alone)			
Heat Treatment			
Phosphine in Combination	50%	Storage before processing	Eco2Fume has completed replaced MeBr in 50% of the facilities.
Other			

11. Please provide a brief description of any equipment fumigated in this operation.

Worksheet 2-B. Methyl Bromide - Historical Use 1997-2002

Column A:	**Total Actual Pounds ai of Methyl Bromide Applied** Enter the total actual pounds active ingredient (ai) of methyl bromide applied. Note: This number should be the total pounds ai applied by the individual user or the entire consortium, for the year indicated. Include only the pounds active ingredient of methyl bromide.
Column B:	**Total Actual Volume (1,000 cu ft) Treated** Enter the total actual volume (1,000 cu ft) treated. Note: This number should be the total actual volume (1,000 cu ft) treated by the individual user or total actual volume (1,000 cu ft) treated for the entire consortium, for the year indicated.
Column C:	**Average Pounds ai Applied per Volume (1,000 cu ft)** The average application rates in pounds ai of methyl bromide per volume (1,000 cu ft) may be calculated by dividing Column A by Column B.
Column D:	**Total Weight of Commodity Treated (in Tons (short))** Enter the total actual weight (tons (short)) treated. Note: This number should be the total actual weight (tons (short)) treated by the individual user or total actual weight (tons (short)) treated for the entire consortium, for the year indicated.
Column E:	**Average Pounds ai Applied per Volume (1,000 cu ft)** The average application rates in pounds ai of methyl bromide per ton (short) may be calculated by dividing Column C by Column D.

Should your operation only measure fumigation in one type of unit (e.g. only the facility is treated or only the commodity is treated), please use appropriate column for volume or weight.

	A	B	C	D	E
Year	**Total Actual Pounds ai of Methyl Bromide Applied**	**Total Actual Volume (1,000 cu ft) Treated**	**Average Pounds ai Applied per Volume (1,000 cu ft)**	**Total Weight of Commodity Treated (in Tons (short))**	**Average Pounds ai Applied per Ton (short)**
1997	208,296	33,000	6.3	363,660	0.57
1998	189,359	30,000	6.3	330,600	0.57
1999	220,920	35,000	6.3	385,700	0.57
2000	195,672	31,000	6.3	341,620	0.57
2001	161,059	34,000	4.7	374,680	0.43
2002	165,000	33,000	5.0	363,660	0.45

What is the frequency of methyl bromide applied per volume (1,000 cu ft)? (1x / year, 2x / year, 1x / 3 years, 1 or 2 times per year when in storage facility_____

If there is a variation (greater than 10%) in the quantity a.i., the volume (1,000 cu ft) treated or average application rate from year to year, please explain the reasons for the variation.

Depending on variations in the amount of nuts and the fixed capacity of the processing plants, more nuts require longer storage which sometimes necessitates secondary fumigations. It is estimated the 30% of the nuts in storage capacity require secondary fumigations.

Comments:

Worksheet 2-C. Baseline - Methyl Bromide - Commodity Treated & Gross Profit for 2000 - 2002

Column A:	**Year** Be sure to enter the year. Use as many rows as needed for each year for all the commodities in the fumigation cycles from 2000 to 2002. If a fumigation cycle overlaps more than one calendar year, then the year of the fumigation cycle is the year methyl bromide was applied.
Column B:	**Commodity** Enter all commodities that benefit from methyl bromide in the fumigation cycle (interval between fumigations). See the Fumigation Cycle Worksheet for a comprehensive definition of the fumigation cycle. If someone other than the applicant benefits from the application of methyl bromide in the fumigation cycle and you do not have the quantitative data for the commodity treated in the same facility/structure, please indicate so in the comments section below.
Column C:	**Market Categories** Enter marketing categories that determine prices received, for example, grade (quality, taste, color) or timeliness (holiday market season, early season, late season). Itemize or aggregate these factors to the extent appropriate if lack of methyl bromide would effect the price in each category.
Column D:	**Unit of Commodity** Enter the unit of measurement for each commodity (lbs, tons, cwt). If not by weight, specify in the comments section the average weight of the measure. For the international review board, all measures will be converted to metric.
Column E:	**Total Commodity Treated** Enter the total units of commodity treated with methyl bromide and processed/sold per area
Column F:	**Price** Enter average prices received by the users for that commodity and category. For the total line, you do not have to enter a price. Average price over all categories can be calculated separately, if needed. If a commodity treated is never owned by the facility, indicate the fees charged for all services.
Column G:	**Cost of Goods Sold** Enter the total cost of goods sold (raw materials purchased) during the period. If this expense is not relevant to your post-harvesting operation, please skip this column.
Column H:	**Gross Profit** Gross profit may be calculated using the data you entered as the Total Commodity Treated times Price minus the Cost of Goods Sold. If gross profit is not equal to total commodity sold times price subtracted by cost of goods sold ((Column E * Column F) - Column G), you may override the formula and enter a different revenue amount. Please explain why this gross profit amount is different in the comment section below.

A	B	C	D	E	F	G	H
Year	**Commodity**	**Market Category** (grade, time, end use)	**Unit of Commodity** (e.g., pounds, tons)	**Total Commodity Treated** (per unit of commodity)	**Price** (per unit of commodity)	**Cost of Goods Sold** (per unit of commodity)	**Gross Profit** (per unit of commodity)
2000	Walnuts	end use	tons (in-shell basis)	310,000	$1,367	$ 455.62	$282,482,747
2001	Walnuts	end use	tons (in-shell basis)	340,000	$1,235	$ 308.64	$314,816,880
2002	Walnuts	end use	tons (in-shell basis)	330,000	$1,323	$ 440.92	$291,007,200

Comments:

Worksheet 2-D. Methyl Bromide - Operating Costs for 2002

The purpose of this worksheet is to determine operating expenses when methyl bromide is used. This forms the baseline for evaluating the cost impacts of using an alternative to replace methyl bromide. The data requested are designed to help you identify how your operation would change if methyl bromide were unavailable, which will be shown in Worksheet 3-B.

Please fill in the unshaded areas. The shaded areas can be used if the information is known.

Column A:	**Operating Expense Items** Identify the operations to which the costs apply. You may add or delete lines as necessary. The operating expense items listed here are not meant to be exhaustive or be representative of your specific operating system. Other operating expenses include, but are not limited to, wage/salary, advertising and selling, utilities, rent and lease, insurance, and supplies. Be as precise as necessary to explain how lack of methyl bromide would affect your operation, otherwise you may aggregate operating expenses. These are meant to provide suggestions and to help you identify how your operation would change if methyl bromide were unavailable.
Column B:	**Quantity Used per Volume (1,000 cu ft) or Weight (tons (short))** This field is required only for methyl bromide. However you may include specific amounts of other inputs or operations if you believe it helps to document the additional costs you would incur by using an alternative fumigant.
Column C:	**Units (lbs. hours, etc.)** For all inputs and operations detailed in Column B, please specify the units of measurement.
Column D:	**Unit Cost ($)** For all inputs and operations detailed in Column B, please specify the unit cost. Also, indicate all costs of applying methyl bromide, including any material costs (e.g. tarps). If custom applied and separate costs are unavailable, write 'custom' and enter total cost in Column E.
Column E:	**Cost ($) per Volume (1,000 cu ft) or Cost ($) per Weight (tons (short))** Enter all appropriate costs of operations per volume (1,000 cu ft) or weight (tons (short)). You may add or delete lines as necessary. *If operation is defined in either cost per volume or cost per weight, please keep the continuity of units.*

A	B	C	D	E
Operating Expense Items	**Quantity Used per Weight (Tons (short))**	**Units** (lbs, hours, etc.)	**Unit Cost ($)**	**Cost ($) per Weight (tons (short))**
1. Pest Management Costs (a+b+c+d)				**$ 8.55**
a) Sanitation				$ 0.50
b) Pest Control				$ 0.65
c) Methyl Bromide Fumigation (c1+c2)				**$ 7.40**
c1) Product	0.45	lbs	$3.89	$ 1.75
c2) Application			$5.65	$ 5.65
d) Other Pest Management Costs				
2. Repairs / Maintenance / Replacement				$ 200.00
3. Interest				$ 20.00
4. Depreciation for Plant Assets				$ 350.00
5. Other Operating Expenses				$ 964.67
			TOTAL OPERATING COSTS	$ 1,543.22

Worksheet 3. Alternatives - Feasibility of Alternative Pest Control Regimens

Purpose of Data: To estimate the loss as a result of not having methyl bromide available. EPA needs to compare data (commodity prices, gross profit, operating expenses, etc.) on the use of methyl bromide and alternative pest control regimens.

Complete worksheet 3-A for each alternative pest control regimen listed in the "U.S. Matrix" for chemical controls (www.epa.gov/ozone/mbr/cueqa.html) and the "International Matrix" for non-chemical pest controls (www.epa.gov/ozone/mbr/cue). Each worksheet contains a place holder in the title for you to insert the name of the specific alternative pest control regimen addressed. You should add additional worksheets as required.

Enter all alternative pesticides and pest control methods (and associated profit and production practices) that would replace one treatment of methyl bromide throughout the fumigation cycle. See the Definition worksheet for a comprehensive definition on fumigation cycles.

Worksheet	Title
3-A	**Alternatives - Technical Feasibility of Alternatives to Methyl Bromide** You must complete one worksheet for each alternative. Please insert the name of the alternative in the area on top of the page. If you prefer, you may provide the information requested in this worksheet in a narrative review. However, you must fill in the information in Question #1 or we will assume no production or quality loss.
3-B	**Alternatives - Changes in Operating Costs** If a consortium is submitting this application, the data for this table should reflect the **representative user** for the consortium. This data is needed to estimate a baseline for operating costs in order to estimate **changes in costs** and the impact on operating profit and short-run economic viability as a result of not using methyl bromide and to provide required information to the international review board. **Please fill out this worksheet for each alternative specified in the U.S. Matrix and for other alternatives for which the economic evaluation would bolster the case that methyl bromide is needed.** The purpose of this worksheet is to determine operating expenses when alternatives are used for evaluating the cost impacts of using an alternative to replace methyl bromide. The data requested are designed to help you identify how your operation would change if methyl bromide were unavailable.

Worksheet 3-A(1). Alternatives - Technical Feasibility of Alternatives to Methyl Bromide

Alternative: Carbon Dioxide (high pressure)

1. Pest Control When Comparing This Alternative to Methyl Bromide (Provide numerical estimates where possible.)

Study #	Pest Being Tested	% Pest Contro	Scale of Study (e.g. pilot, plot)	Resulting Damages (please specify)
1	Beetle	95%	Pilot	In-shell walnut damaged because of high pressure.
2				
3				
4				
5				

2. Study Information For the cited studies above, please list: study name, authors, publication, date, and indicate with a checkmark if a copy is attached and if it is on the EPA website.

Study #	Copy?	EPA?	Details
1	X		Nakakita, H., and K. Kawashima. A new method to control stored-product insects using carbon dioxide with high pressure followed by sudden pressure loss. 6th International Conference on Stored -Product Protection, 17-23 April, 1994, Canberra, Australia. CAB International 1: 214-216.
2			
4			
5			

3. Are there any production delays (downtime) associated with this alternative? Yes [ ] No [X]

If yes, please continue with 3a, 3b, 3c.

3a. Please specify the number of days per year of downtime: _____ days/year

3b. What is the cost of production delays or downtime per year? _____ per year

3c. Please explain the details of going into downtime and why it is necessary with this alternative.

4. What is the estimated probability of the commodity not meeting consumer quality standards with and without methyl bromide or alternative treatments? (please explain.)

There is high probability of the commodity not meeting consumer quality standards because the in-shell walnuts can be damaged and all walnuts are expected to develop rancidity faster.

5. Restrictions/Limitations on Alternative Use ıis information will be used to determine the amount of methyl bromide neede

	% of Structure/Facility/Volume	Details
Regulatory Restriction		
- Label Restriction		
Climate Restriction		
Pest Resistant To Alternative		
Structural Limitations		
Facility Limitations		
Other Restrictions/Limitations (Describe)		

6. Why is this alternative not suitable to replace 100% of methyl bromide use in processing this commodity?

If high pressure Carbon dioxide is used, the in-shell walnuts maybe damaged. In addition, it is likely that the the walnuts will become rancid more quickly.

Worksheet 3-A(1). Alternatives - Technical Feasibility of Alternatives to Methyl Bromide

Alternative: **Carbon Dioxide (high pressure)**

7. Use Rate of Chemical Alternative

Active Ingredient (a.i.)	Name of Product and Formulation	Quantity per Volume (1,000 cu ft)	Units (gals, lbs. Etc.)	Volume (1,000 cu ft) Treated	# of Applications per Year
Carbon Dioxide		4	gals	2.5	2

8. Non-Chemical Pest Control (please describe)

2. Fumigation Timeline (Indicate when fumigation, major commodity and pest management practices typically occur. If the fumigation cycle is longer than one year change the months to an appropriate interval.)

Fumigation Cycle	Time Interval (e.g. WEEKS/MONTH/YEAR)											
	Month 1	Month 2	Month 3	Month 4	Month 5							
Facility Preparation												
Sealing												
Cleaning												
Fumigation Timeline												
Reception of Raw Materials												
Processing												
Storage												
Raw Materials												
Finished Product												
Packing												
Shipping												
Retail Market Window												
Other Pest Treatments												
Other												

Comments:

Worksheet 3-B(1). Alternative - Changes in Operating Expenses

Alternative: **Carbon Dioxide (high pressure)**

Please fill in the unshaded areas. The shaded areas can be used if the information is known.

Column A:	**Operating Expense Items** Identify the operations to which the costs apply. You may add or delete lines as necessary. The operating expense items listed here are not meant to be exhaustive or be representative of your specific operating system. These are meant to provide suggestions and to help you identify how your operation would change if methyl bromide were unavailable.
Column B:	**Quantity Used per Volume (1,000 cu ft) or Weight (tons (short))** This field is required only for alternatives. However you may include specific amounts of other inputs or operations if you believe it helps to document the additional costs you would incur by using an alternative fumigant.
Column C:	**Units (lbs. hours, etc.)** For all inputs and operations detailed in Column B, please specify the units of measurement.
Column D:	**Unit Cost ($)** For all inputs and operations detailed in Column B, please specify the unit cost. Also, indicate all costs of applying alternatives, including any material costs (e.g. tarps). If custom applied and separate costs are unavailable, write 'custom' and enter total cost in Column E.
Column E:	**Cost ($) per Volume (1,000 cu ft) or Cost ($) per Weight (tons (short))** Enter all appropriate costs of operations per volume (1,000 cu ft) or weight (tons (short)). You may add or delete lines as necessary. *If operation is defined in either cost per volume or cost per weight, please keep the continuity of units.*

A	B	C	D	E
Operating Expense Items	**Quantity Used per Volume (1,000 cu ft) or Weight (Tons (short))**	**Units** (lbs, hours, etc.)	**Unit Cost ($)**	**Cost ($) per Volume (1,000 cu ft) or Cost ($) per Weight (tons (short))**
1. Pest Management Costs (a+b+c+d)				
a) Sanitation				$0.50
b) Pest Control				$0.65
c) Fumigation (c1+c2)				$13.00
c1) Product	4	gals	$1.50	$6.00
c2) Application			$7.00	$7.00
d) Other Pest Management Costs				
2. Repairs / Maintenance / Replacement				$200.00
3. Interest				$28.00
4. Depreciation for Plant Assets				$350.00
5. Other Operating Expenses				$1,200.00
			TOTAL OPERATING COST	$1,805.15

What are the additional new investments (structures, facilities, equipment, fumigation chambers, etc.) needed to utilize this alternative?

Establish necessary capital expenditures required for the uses of alternatives. For example, the incremental costs to convert to heat treatment might include installing a steam heating system, purchasing generators, installing necessary ductwork, and retrofitting other components to make them amenable to heat treatment.

Type of Investment	Total Investment ($)	Life of Investment (# of years)	Salvage Value ($)	Interest Rate (%)
14 Fumigation Chambers	$3 million	40	$1.5 million	6.5

Comments:

Worksheet 3-A(2). Alternatives - Technical Feasibility of Alternatives to Methyl Bromide

Alternative: Phosphine

1. Pest Control When Comparing This Alternative to Methyl Bromide (Provide numerical estimates where possible.)

Study #	Pest Being Tested	% Pest Contro	Scale of Study (e.g. pilot,	Resulting Damages (please specify)
1	Beetle	95%	Pilot	
2				
3				
4				
5				

2. Study Information For the cited studies above, please list: study name, authors, publication, date, and indicate with a checkmark if a copy is attached and if it is on the EPA website.

Study #	Copy?	EPA?	Details
1	X		Hartsell, P.L. J.C. Tebbets and P.V. Vail 1991. Phosphine fumigation of in-shell almonds for insect control.
2			
4			
5			

3. Are there any production delays (downtime) associated with this alternative? Yes [X] No [ ]

If yes, please continue with 3a, 3b, 3c.

3a. Please specify the number of days per year of downtime: 20 days/year

3b. What is the cost of production delays or downtime per year? $29,100,720 per year

3c. Please explain the details of going into downtime and why it is necessary with this alternative.

It is estimated that 60% of the European market, representing a loss in 10 % in total sales would be lost

4. What is the estimated probability of the commodity not meeting consumer quality standards with and without methyl bromide or alternative treatments? (please explain.)

5. Restrictions/Limitations on Alternative Use s information will be used to determine the amount of methyl bromide need

	% of Structure/Facility/Volume	Details
Regulatory Restriction		
- Label Restriction		
Climate Restriction		
Pest Resistant To Alternative		
Structural Limitations		
Facility Limitations		
Other Restrictions/Limitations (Describe)		

6. Why is this alternative not suitable to replace 100% of methyl bromide use in processing this commodity?

The most critical factor limiting the shift to phosphine is that the necessary fumigation space is not there. Substantial investment will be needed to create this space.

Worksheet 3-A(2). Alternatives - Technical Feasibility of Alternatives to Methyl Bromide

Alternative: **Phosphine**

7. Use Rate of Chemical Alternative

Active Ingredient (a.i.)	Name of Product and Formulation	Quantity per Volume (1,000 cu ft)	Units (gals, lbs. Etc.)	Volume (1,000 cu ft) Treated	# of Applications per Year
Phosphine	Eco2Fume	0.39	cylinders	17.8	2

8. Non-Chemical Pest Control (please describe)

2. Fumigation Timeline (Indicate when fumigation, major commodity and pest management practices typically occur. If the fumigation cycle is longer than one year change the months to an appropriate interval.)

Fumigation Cycle	Time Interval (e.g. WEEKS/MONTH/YEAR)											
	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7					
Facility Preparation												
Sealing												
Cleaning												
Fumigation Timeline												
Reception of Raw Materials												
Processing												
Storage												
Raw Materials												
Finished Product												
Packing												
Shipping												
Retail Market Window												
Other Pest Treatments												
Other												

Comments:

Worksheet 3-B(2). Alternative - Changes in Operating Expenses

Alternative: **Phosphine**

Please fill in the unshaded areas. The shaded areas can be used if the information is known.

Column A:	**Operating Expense Items** Identify the operations to which the costs apply. You may add or delete lines as necessary. The operating expense items listed here are not meant to be exhaustive or be representative of your specific operating system. These are meant to provide suggestions and to help you identify how your operation would change if methyl bromide were unavailable.
Column B:	**Quantity Used per Volume (1,000 cu ft) or Weight (tons (short))** This field is required only for alternatives. However you may include specific amounts of other inputs or operations if you believe it helps to document the additional costs you would incur by using an alternative fumigant.
Column C:	**Units (lbs. hours, etc.)** For all inputs and operations detailed in Column B, please specify the units of measurement.
Column D:	**Unit Cost ($)** For all inputs and operations detailed in Column B, please specify the unit cost. Also, indicate all costs of applying alternatives, including any material costs (e.g. tarps). If custom applied and separate costs are unavailable, write 'custom' and enter total cost in Column E.
Column E:	**Cost ($) per Volume (1,000 cu ft) or Cost ($) per Weight (tons (short))** Enter all appropriate costs of operations per volume (1,000 cu ft) or weight (tons (short)). You may add or delete lines as necessary. *If operation is defined in either cost per volume or cost per weight, please keep the continuity of units.*

A	B	C	D	E
Operating Expense Items	**Quantity Used per Volume (1,000 cu ft) or Weight (Tons (short))**	**Units** (lbs, hours, etc.)	**Unit Cost ($)**	**Cost ($) per Volume (1,000 cu ft) or Cost ($) per Weight (tons (short))**
1. Pest Management Costs (a+b+c+d)				
a) Sanitation				$0.50
b) Pest Control				$0.65
c) Fumigation (c1+c2)				$8.47
c1) Product				
c2) Application				
d) Other Pest Management Costs				
2. Repairs / Maintenance / Replacement				$200.00
3. Interest				$28.00
4. Depreciation for Plant Assets				$350.00
5. Other Operating Expenses				$900.00
			TOTAL OPERATING COST	$1,487.62

What are the additional new investments (structures, facilities, equipment, fumigation chambers, etc.) needed to utilize this alternative?

Establish necessary capital expenditures required for the uses of alternatives. For example, the incremental costs to convert to heat treatment might include installing a steam heating system, purchasing generators, installing necessary ductwork, and retrofitting other components to make them amenable to heat treatment.

Type of Investment	Total Investment ($)	Life of Investment (# of years)	Salvage Value ($)	Interest Rate (%)
1 million pound silos	$3 million	40	$1.5 million	6.50%
Land	$500,000			

Comments:

Worksheet 4. Future Research Plans

Please describe future plans to test alternatives to methyl bromide. You may use this worksheet to describe all future plans.

1. Identify the top 3 to 5 target pests for your research.

1	Indianmeal moth	4	
2	Beetle	5	
3			

2. Provide a list of alternative chemicals or cultural practices that have been tested.

1	Eco2fume	4	
2		5	
3			

3. Prioritize the alternative chemicals or cultural practices to be tested.

1	Eco2Fume	4	
2	Carbon Dioxide	5	
3			

4. What would be the best currently available alternative if methyl bromide were not available?

Eco2Fume

5. Please provide an overview/timeline of the plan to transition away from using methyl bromide.

6. Will you collect data on the probability of failure to meet quality standards?

7. How will you minimize your use and/or emissions of methyl bromide?

(check all that apply)

	Formulation Changes (please specify)	
	Tarpaulin (High Density Polyethylene)	
	Virtually Impermeable Film (VIF)	
	Reclamation	
	Cultural Practices (please specify)	
X	**Other Pesticides (please specify)**	Eco2Fume
	Sealing Buildings	
	Integrated Pest Management (IPM)	
	Non-Chemical Methods (please specify)	
	Other	

Formulation Changes

From: _____% methyl bromide, _____% chloropicrin

To: _____% methyl bromide, _____% chloropicrin

8. What is the cumulative amount spent and the types of contributions this consortium has made to fund research to develop alternatives to methyl bromide since 1992? (e.g. consortium dues, direct research funding, etc.)

Year	Name of Organization / Research Institution	Amount ($)

9. Other total investments, if any, made to reduce your reliance on methyl bromide? $

(Describe each investment and its associated costs. e.g. specialized machinery, new facilities, etc.)

Investment	Cost

10. Grant requests made to USDA, EPA, state, or other funding group.

Worksheet 5. Application Summary

This worksheet will be posted on the web to notify the public of requests for critical use exemptions beyond the 2005 phase out for methyl bromide. Therefore, this worksheet cannot be claimed as CBI.

1. **Consortium Name:** Walnut Producers, West Coast
2. **Location:** California
3. **Crop:** Walnuts in-shell and shelled.
4. **Pounds of Methyl Bromide Requested** **2005** 300,000 **lbs.**
5. **Volume Treated with Methyl Bromide** **2005** 50,000 **(1,000 cu ft)**
6. **If methyl bromide is requested for additional years, reason for request:**

2006 250,000 **lbs.** **Volume Treated** 41,797 **(1,000 cu ft)**

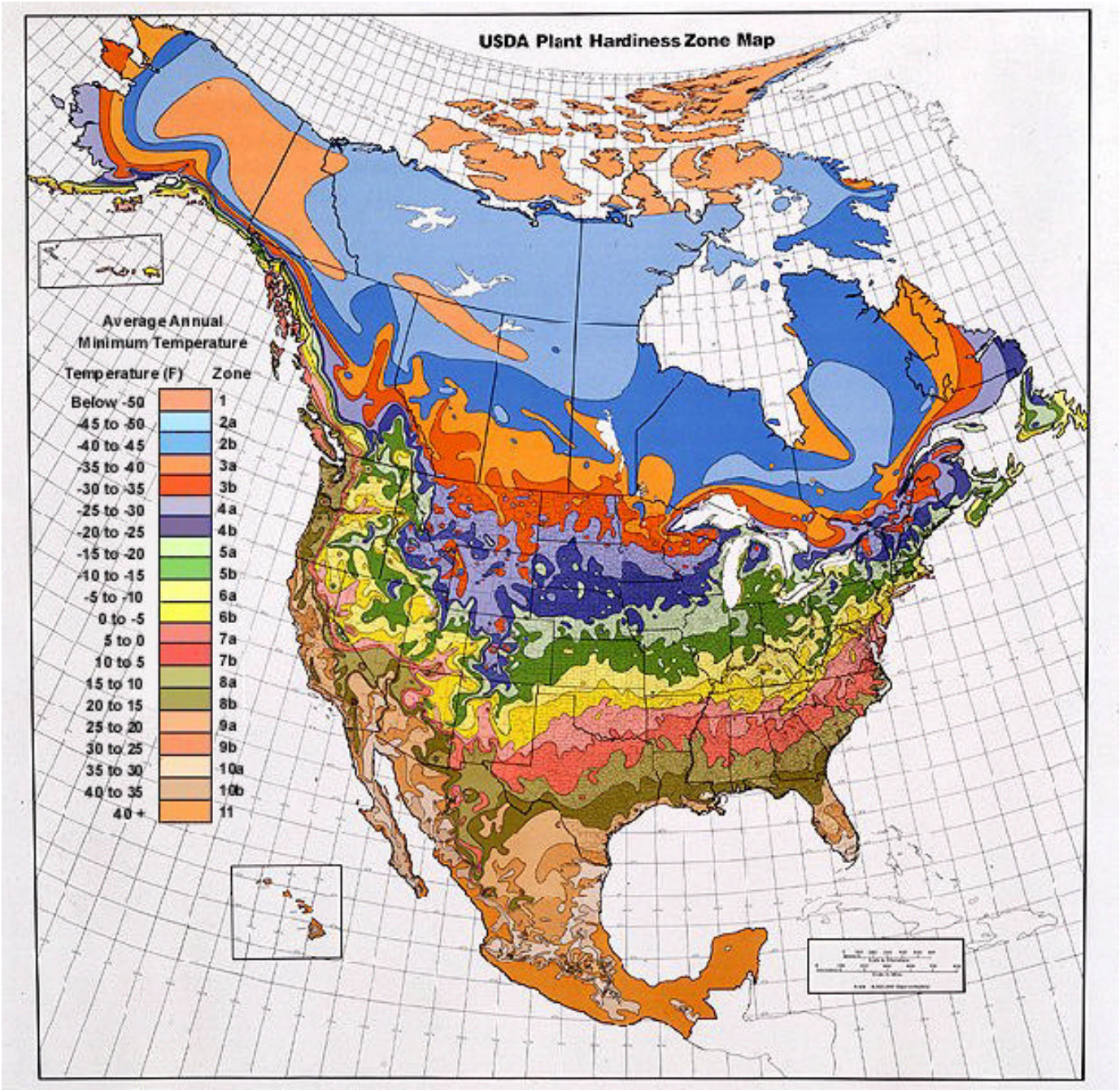
2007 230,000 **lbs.** **Volume Treated** 38,333 **(1,000 cu ft)**

Place an "X" in the column(s) labeled "Not Technically Feasible" and/or "Not Economically Feasible" where appropriate. Use the "Reasons" column to describe why the potential alternative is not feasible.

Potential Alternatives	Not Technically Feasible	Not Economically Feasible	Reasons
Eco2fume	X	X	
Carbon Dioxide		X	

Definitions:

Fumigation cycle:	The period of time between methyl bromide fumigations.
Year:	If a fumigation cycle overlaps more than one calendar year, "year" refers to the calendar year when methyl bromide is applied (or the beginning of the cycle).
Comparable data:	In order to compare revenues and costs with and without methyl bromide, data on alternatives for pest control, yields, revenues, and costs must be for the same time interval as the methyl bromide fumigation cycle. If, however, quantitative data, is not available for the entire fumigation cycle, then to be comparable, the quantitative data for the alternatives should cover the same portion of the fumigation cycle as the quantitative data for methyl bromide, and the rest of the cycle should be discussed in the comments sections.
2-year example:	If a methyl bromide fumigation is made every 2 years, then the 2001 fumigation cycle began in 2001 and would end in 2003. The data should cover the methyl bromide costs and usage for the methyl bromide fumigation made in 2001, and all yields and revenues received and other costs incurred during the 2 year period. To be comparable, the data on alternatives should cover a similar 2 year period beginning in 2005 beginning at the same time of year when a methyl bromide fumigation would be made. The data should cover all methyl bromide alternatives used, and all yields and revenues received during that 2-year interval. Other pest control and other costs would only need to be provided for that interval if they would change from what they were with methyl bromide.
Other beneficiary example	If someone other than the applicant benefits from a methyl bromide fumigation, you should comment on these benefits if you do not have quantitative data for the entire fumigation cycle. For example, if a rotational crop in the second year benefits from a methyl bromide fumigation a year earlier, but there is quantitative data only on the first crop, then the data on the alternatives should cover only the first crop, and the benefits of methyl bromide and the additional pesticides that would have to be used on the rotational crop should be discussed in the comments sections.
Crop cycle change example:	If in a one year interval, methyl bromide is applied, tomatoes are grown and harvested followed by peppers, then the fumigation cycle would be one year including the tomatoes and peppers. If, however, without methyl bromide, it is not possible to follow tomatoes with peppers in the same one year interval, then the alternative data on pesticides, costs, yields, and revenues should just cover tomatoes. The loss of profit from not being able to grow peppers with the alternatives would be part of the loss from not having methyl bromide.
Crop Grouping	The applicant can group simliar crops together if: (i)Crops would experience similar yield and quality losses in the absence of methyl bromide; and (ii)Crops are grown on the same fumigation and cultivation cycle with similar operating costs. For example, nursery crops including various flower or tree species can be aggregated, with average yields per acre and prices. However, if crops are distinctly different in revenues and operating costs, or the cycles, the applicant may want to present yield, price and operating costs for each crop separately and also indicate the proportion of land area allocated to each crop.


USDA Plant Hardiness Zone Map
Average Annual
Minimum Temperature
Temperature (F)
Zone
Below -50
-45 to -50
-40 to -45
-35 to -40
-30 to -35
-25 to -30
-20 to -25
-15 to -20
-10 to -15
-5 to -10
0 to -5
5 to 0
10 to 5
15 to 10
20 to 15
25 to 20
30 to 25
35 to 30
40 to 35
40 +
1
2a
2b
3a
3b
4a
4b
5a
5b
6a
6b
7a
7b
8a
8b
9a
9b
10a
10b
11